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INFORMATION REPORT INFORMATION REPORT

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COUNTRY East Germany

REPORT

SUBJECT Study Entitled: "The Outfitting of Army Units of the Soviet Forces and the NVA with Telecommunications Equipment"

DATE DISTR. 18 DEC 1964

NO. PAGES 1

REFERENCES

50X1-HUM

DATE OF INFO.

PLACE & DATE ACQ.

SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE

1. 50X1-HUM

2. In summary, the study points out that emphasis has been placed on the outfitting of signal troop units with modern telecommunications equipment. Particular attention has been paid to insure that telecommunications connections can be provided in situations involving rapid movements. To this end, modern radio equipment of Soviet make, the so-called R-series, has been introduced into all the armed forces of the satellites since 1954.

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STATE	X ARMY	X NAVY	X AIR	X NSA	X FBI		DIA	X	

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The Outfitting of Army Units of the Soviet Forces and the NVA With Telecommunications Equipment:

As of 1959

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Short summary of contents

Since 1954, the outfitting of the telecommunications (signal) units of the troops with modern telecommunications equipment has been energetically carried out in the East Bloc countries. Above all, particular attention has been given to the securing of telecommunications connections in rapid moving units. For this purpose, the introduction of modern radio equipment developed by the Soviets, i.e. the so-called R-series into all combat units of the East Bloc countries has been under way since 1954. Moreover, instruments are being produced in the satellite countries to compliment the R-series according to a standarized program. In East Germany, these instruments are of the FK-series and the FU-series.

Each troop unit down to the battalion level has, in practice, several command posts from which orders can be issued. Other than the command post in the rear, at least two command posts are completely equipped with telecommunications equipment. Should an entire level of command break down (for example: all command posts of a regiment), it is possible for the next lower unit (the battalion) to reach the next highest command office (i.e. the division) via a direct radio connection in the "reserve network."

In order to increase the security of the telecommunications

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connections in mobile units, the outfitting of the troops with VHF and decimeter radio instruments is being given priority whenever possible. New VHF small radio instruments are being developed for use in companies and efficient portable VHF radio instruments are in the process of being developed for connections in the division down to the battalion level. In order to increase the range of the VHF instruments, different types can be used even in relay operation.

When the situation permits, sufficient wire connections will be provided even in time of battle. In the billeting assembly areas and supply ~~stations~~, the Soviet Army operates a well constructed overhead line network.

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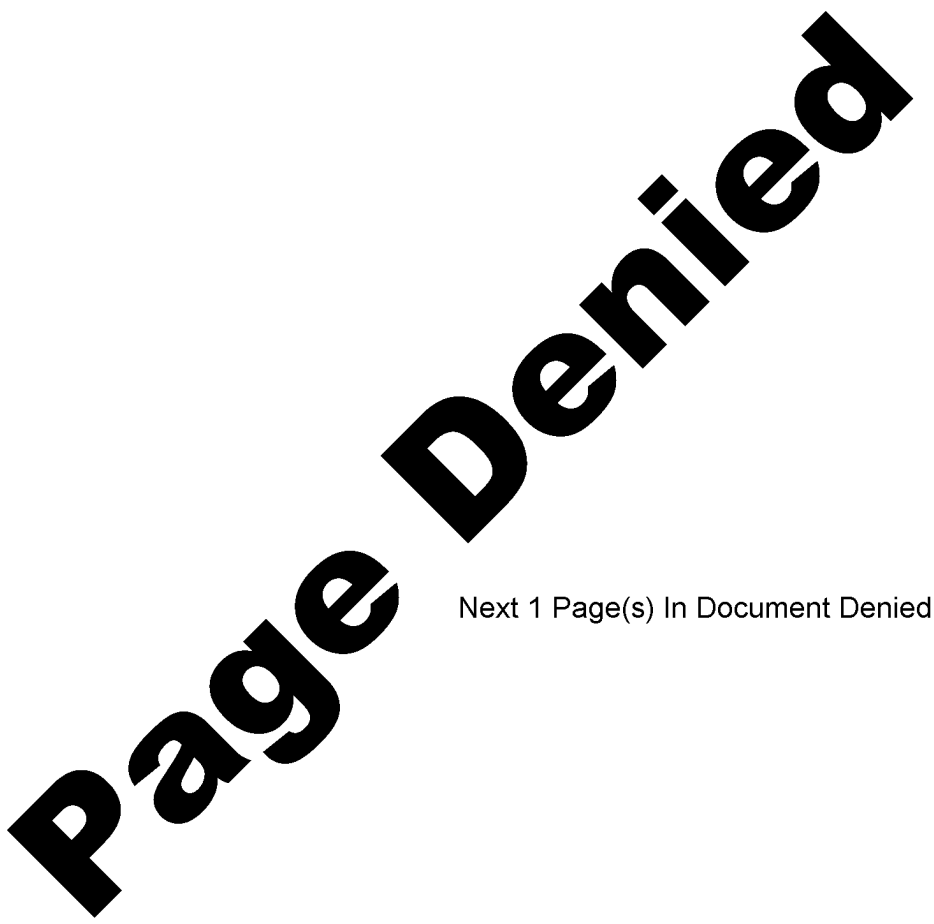

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I. Information concerning the outfitting of the army units of the SOA and the NVA with new telecommunications equipment on the basis of the reports which have been available thus far.

A. General overall picture

The outfitting of the SOA with telecommunications instruments has completely changed in the last 10 years. Whereas in the 2nd World War and in the years which followed, until approximately 1954, there were only a few radio instruments in the troop units in advance of the regiment, today the radio is the main telecommunication instrument of the NVA and the SOA in the units in advance of the regiment of the motorized rifle division and the tank division.

In the first ten years after the 2nd World War precedence was given in the Soviet Union to the outfitting of the troops with radar instruments. It wasn't until they discovered the immediate need here that they began, in approximately 1954, to outfit the troops with modern telecommunications equipment to a great extent.

This report deals mainly with the outfitting of the motorized rifle divisions with radio instruments. Moreover, it should be stated in advance that the telecommunications instruments of the East Bloc which are described on these pages are known.

The description of the outfitting of the units of the SOA is based for the most part on information concerning the NVA which has been applied to the breakdown of the SOA. Therefore, the breakdown diagrams, which are designated as attachments, of the telecommunications units of the SOA are only valid with reservations. This report shows

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the information as of 1959. In the meantime, different new types of instruments have certainly been introduced, however, no basic changes in the outfitting have been observed.

B. The wired telecommunications instruments and the directional radio

The outfitting of the troops with wired telecommunications equipment is shown in the breakdown pictures listed as attachments. For the use of wired telecommunications instruments the following principles are in affect:

1. Wired connections are always to be set up when the situation permits (for example during preparation and during defense). In such cases the use of the radio is forbidden. When no wire connections have been set up, for example during hasty preparations, movable communications means will be used (messengers, motorcycle messengers, trucks, etc.) in order to guarantee radio silence.

2. Basically only double lines are being built. Single wire connections with "grounds" have not been planned.

3. The SOA lays emphasis on a well constructed network of overhead lines in the billeting and assembly areas. In East Germany, overhead line pivotal control points are maintained which run across East Germany from east to west (attachment 1). These pivotal control points are serviced and guarded partially by the Post and partially by SOA, each depending upon how it is being used at the moment.

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4. Moreover, at the present, in almost all satellite countries, a well balanced stationary radio directional network is being built

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especially for the political and military headquarters as well as for the air defense.

The radio directional connections are included with the wired connections with respect to security measures, ie, they allegedly may be operated during radio silence.

An effort is being made to employ directional radio connections in the troop units even more than was formerly the case. The connections are also to be used in mobile units and are to run through the division to still more forward units, to the regiment at the point of main effort, in order to more quickly have operational communications connections at their disposal and to reduce the use of short wave and UHF radio as much as possible. [redacted] 50X1-HUM

In the East Bloc, East Germany is heavily participating in the construction of portable radio directional connection instruments. From 1950 until today, East Germany has continually delivered instruments to the armies of the East Bloc countries. [redacted] Portable radio directional connection instruments are also being produced for the NVA [redacted] 50X1-HUM [redacted] Particulars concerning the use of such instruments in the troop units are not yet known. 50X1-HUM

5. The T51 page printer [redacted] is being used in the NVA; the ST35 tape printer is being used in the SOA up to the regimental level [redacted] 50X1-HUM 50X1-HUM

[redacted] 50X1-HUM

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6. Carrier frequency instruments are being used in the NVA down to the regimental level. In the communication battalion of the division the well known instruments TFa...d are available.

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Carrier frequency instruments with the higher channel numbers are being used in the stationary and mobile radio directional lines of the military and political headquarters [redacted] 50X1-HUM

C. Radio communications instruments

As was previously stated, the radio is the main means of communication in the motorized rifle division. For example, in the motorized rifle battalion there is allegedly only one cable construction crew and in the tank battalion there is no cable construction crew.

With the introduction of the radio instrument of the R series into the SOA in 1954, and also, in the years which followed, into the armies of the satellite countries, by and by the army units will also be outfitted with instruments of the R series. Apart from the supply problem, in this way the problems of radio control of the armed forces in the east bloc countries between the units of different nationalities will be made easier.

Within the east bloc, CEMA and the OSS play an important role in the coordination of the development tasks and in the division of military instruments among the satellite countries.

Whereas in the Soviet Union innumerable types of instruments are being produced, in the satellite countries they are striving to allocate only partial tasks in the production of the instruments. Thus it is said they plan to divide the radio instrument production

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as follows:

Hungary: small radio instruments, short wave VHF up to 100 watts.

Poland: radio instruments: short and VHF, 100-300 watts.

East Germany: radio instruments, short wave and VHF, 300 watts - 1 kilowatt.

However, strong resistance to such control can be seen in the satellite countries.

The instruments of the R series have been developed in the Soviet Union. In East Germany, the developments and production of similar or improved types of radio instruments took place and are still taking place. FK series; 50X1-HUM

The following information deals primarly with the instruments of the R series which can be found in the motorized division and in the tank division. Generally speaking, the following distinctions have been made thus far in this type of series:

R 100 and upwards-army radio instruments 50X1-HUM

R 200 and upwards-receiver.

R 300 and upwards-receiver.

R 400 and upwards- radio directional instruments 50X1-HUM

R 600 and upwards-naval radio instruments

R 800 and upwards-airforce instruments 50X1-HUM

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This list should not be viewed as binding. Similar type designation also appear which do not belong to the R series.

Other than the instruments of the R series, in the east bloc the RT 26 is being used in tanks and the RT 12 is being used in armored personnal carriers. Both types have the same frequency range of 3.75 to 6 megacycles. The frequency range of two to six megacycles has been preferred in the SOA. [continued on next page]

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for the tank radios as the older types of instruments shown [redacted] 50X1-HUM [redacted] Allegedly, the 10 RT is supposed to be superseded or improved upon by the use of two new instruments of the R series in the VHF range, ie the types R112 and R 113. The particulars about these instruments are not yet known. 50X1-HUM

[redacted] the frequency ranges of the radio instruments of the R series.

For the most part, the instruments of the R series have not yet been equipped with printed circuits and transitors as of 1959.

In East Germany, however, in 1959-60 the development of partially transistorized radio instruments for VHF was completed.

These instruments were of the type FU 0.25 A/B, FU 0.5, FU 1, FU 8, FU 10, and FU 16. Of these instruments, the FU 0.25 A has been in production since 1960.

The other instruments of the FU type series are either in the developmental stage or following their development have not been put into production in East Germany. It is quite possible that these instruments have been turned over to other countries of the East bloc for production, with respect to the previously mentioned division of production. The following particulars are known about the FU 16: portable, frequency range 33-50 megacycles, 16 watts. In attachment 4, the frequency ranges of the radio instruments are shown which are either being produced or developed in East Germany at the present time. (The 6 black lines show the frequency ranges of the instruments of the FK and FU series).

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D. Over all views concerning the outfitting of the telecommunications (signal) units of the motorized rifle division with telecommunications instruments.

[redacted] the outfitting of the different telecommunications (signal) units of the motorized division of the SOA NVA FOR (NCA) with telecommunications instruments. 50X1-HUM

The tactical symbols have been given in accordance with the headquarters division 1/11. The type designations of the radio instruments have been given by using the type number, for example: 118 equals R 118.

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[redacted]

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In the VHF range (above 30 megacycles) the types R 116, 106, 105, (R 108 with the F frequency range) are found the most, and in the short wave range the types (R 108 with half frequency range) 10 RT and R 104 are found the most.

E. Possible use of the radio instruments

The possible uses of a radio instruments of the division (signal) telecommunications battalion [redacted] 50X1-HUM The breakdown of the command posts of the division show here is the same for the regiment and may also be presumed to be similar for the battalion. The radio troops designated on the regimental level do not belong to the division radio company but rather to the telecommunications company (signal company) of the regiment. The subdivision of the regimental command posts into a command post, unit command post (KBP), deputy for supply and evasion command post (exchange command post) have been omitted from this presentation for the sake of clarity.

If one counts up the necessary number of instruments for this type of radio use, he will arrive at a higher need [redacted] 50X1-HUM [redacted] 50X1-HUM. For example, instead of the appropiate six R 104s, here 8 to 9 instruments are necessary. Therefore, it is planned to equip the director of the supply services with his own telecommunications (signal) platoon consisting of two R 104's, two 105's, a telephone exchange team, and a headquarters construction team.

In addition to the radio connections which are shown, there are also the connections of the artillery headquarters of the division.

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They have not been shown because they will be supplied with the telecommunications means of the director of the artillery. There are the following connections:

(1) The Kreis (network) of the director of the division artillery (in the KBP) with the commanders of the regimental artillery groups (division artillery assembled in one to two groups, Kreis with R 104).

(2) The Kreis (network) of the director of the artillery with the director of the artillery of the motorized regiment (regimental artillery, Kreis with R 105).

(3) The network of the chief of staff of the division artillery (at the division command post) with the command posts of the (1-2) regimental artillery groups. (Kries with 118).

Moreover the following has not been shown: the connections of the air reconnaissance and the network of the air defense, which consists of the radio contacts between the eye-ear observation troops of the regiment and the division. These troops allegedly have their own radio and wired connections for the transmission of their "AVIO" [sic] report.

[redacted] the possible use of the radio instruments of the radio platoon of a regimental telecommunications (signal), company. The division of the command posts in a battalion into a command post, KBP, and evasion command post is not shown for the sake of clarity. It is very probable that during the time of battle the battalion commander will be directed by the KBP, while

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chief of staff (adjutant) of the battalion will remain at the battalion command post.

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Therefore, here as well as in the case of the regiment and the division at least two command posts must be established for the direction of the combat with telecommunications equipment (not counting the exchange command post and the supply equipment). In advance of the battalion the R 106 is being used to the companies, and in the companies the R 116 is being used.

Moreover, in addition to this, between the motorized rifle company and the tank company there is probably also the so called network for the collaboration of the battalion which is being equipped with the R 106 instruments between the motorized rifle companies and with the 10 RT between the tank companies.

It is questionable as to whether or not for this network, next to the instruments for traffic to the rear, there is still another instrument in the companies.

II. Opinion

1.) The Soviet leadership places particular emphasis upon the securing of telecommunications connections during the rapid and extensive use of its armed forces. Allowances are being made these demands of the mobile combat headquarters through the expansion of the permament personnel of the telecommunications units, and , since 1954, especially through the modernization of the outfitting with radio instruments.

The planned outfitting of the troops with directional radio instruments, which is already in progress, will not only increase the efficiency of the telecommunications connections in advance of

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the division in mobile use. The units will also find themselves in a position of being able to quickly tie themselves into the radio directional (ground) network, which is under construction, anywhere in the entire east bloc.

2). In order to guarantee the control of the units even in the cases of breakdown within the telecommunications network, during combat several command posts (main command posts, KBT, and exchange command posts) will be established. Moreover, the units and task forces can make radio contact with the next highest command posts in the situation where all directly superior command posts are out of action.

3.) The securing of the radio connections against enemy monitors is allegedly supposed to be increased by an increased use of radio instruments with frequency ranges above 20 megacycles.

As of 1959, there were approximately 490 short wave instruments and 380 VHF instruments (above 30 megacycles) in the motorized rifle division. (The R 108 instrument comprised half of each of the two types of instruments).

If, among the VHF instruments, one counts the radio instruments with the frequency ranges above 20 megacycles with respect to the wave propagation in these frequency ranges, then the number of instruments which the motorized rifle division is equipped with is comprised of approximately the same number of short wave instruments as VHF instruments.

In comparison to this, as of 1959, in the tank division the

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outfitting was clearly predominately with short wave radio instruments (under 20 megacycles). Should the tank troops be equipped with the R 112 and 113 instruments, as is expected, then, for example in the motorized division, there would be 800 ~~new~~ VHF radio instruments with a frequency range above 20 megacycles and only approximately 90 radio instruments with a ~~the~~ frequency range below 20 megacycles. In that case, the number of remaining instruments with a frequency range below 20 megacycles in the tank division would be still less.

4.) The outfitting with instruments which is described here recognizes demands which every army automatically makes.

In the west the development has been going since before 1954, in the direction indicated in this report. The Soviet leadership quickly adopted the appropriate knowledge.

Whereas each of the western states is carrying out its own ~~an~~ instrument development and, in doing so, is striving for peak efficiency, the Soviet leadership is striving to outfit the troops of the east bloc countries as quickly as possible with standardize instruments in sufficient numbers even if high efficiency must be partially sacrificed. The Soviet leadership is making use of the OSS and CEMA for the realization of these goals. In the field of telecommunications, these organizations are dealing with the distribution of development tasks and production in these countries of the east bloc.

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